

HEALTH CARE PROVIDERS' RECOMMENDATIONS FOR MENSTRUAL SUPPRESSION  
FOR SERVICEWOMEN PRIOR TO DEPLOYING TO AN AUSTERE FIELD  
ENVIRONMENT

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## **HEALTH CARE PROVIDERS' RECOMMENDATIONS FOR MENSTRUAL SUPPRESSION FOR SERVICEWOMEN PRIOR TO DEPLOYING TO AN AUSTERE FIELD ENVIRONMENT**

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**Problem:** Servicewomen that are being deployed to austere field environments may need assistance in managing their menstrual hygiene. Often these servicewomen lack access to restrooms and adequate hand washing facilities. Managing a menstrual cycle in an austere field environment may be difficult, inconvenient, and lead to genitourinary tract infections. There are various contraceptive methods available that may be used for menstrual suppression if servicewomen desire to manage their menstrual cycle while deployed. These methods include use of long-acting reversible contraception (LARC), continuous use of a contraceptive by eliminating the withdrawal-bleeding week, or receiving injectable progesterone. Servicewomen have reported a desire for education on menstrual suppression options, yet most have not been provided this education from health care providers.

**Project Aim:** The overall aim of this project was to identify the current practice of health care providers at a Midwestern U.S. Army Military Treatment Facility (MTF) in regards to their recommendations for menstrual suppression for servicewomen prior to deploying to an austere field environment.

**Project Method:** A brief 11-question paper and pencil survey, concerning providers' current recommendations regarding menstrual suppression techniques, was administered to health care providers during a routine staff meeting. The Project Director and the U.S. Army MTF Health Center Educator will ensure distribution of the surveys. The survey consisted of nine multiple-choice questions and two ranking style questions. Survey responses were analyzed and disseminated at the facility to encourage discussion on the topic of menstrual suppression for servicewomen deploying to an austere field environment.

**Results:** Seven health care providers completed the survey and the majority did not routinely discuss menstrual suppression options with AD servicewomen. Most health care providers prescribed contraception for both birth control and menstrual suppression. Female health care providers were more likely to prefer a LARC for menstrual suppression.

**Conclusions:** Servicewomen need counseling regarding menstrual suppression options from their health care provider prior to deploying to an austere field environment. LARC appears to be a viable option for menstrual suppression for these servicewomen. Future, large scale research with members from different branches of the military may help to better understand difficulties servicewomen face with menstrual suppression.

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## **Introduction**

Between September 11, 2001 and February 28, 2013 almost 300,000 U.S. servicewomen deployed to Iraq or Afghanistan (Manski, Grindlay, Burns, Holt, & Grossman, 2014). Women account for 15% of the active duty (AD) military (Krulewitch, 2016). The Secretary of Defense announced in December of 2015 that the United States Army would open all combat roles to females, resulting in 220,000 new jobs for women (Rosenberg & Phillips, 2015). These recently opened combat arms jobs traditionally have been filled exclusively by male service members (Krulewitch, 2016). The expanding roles will lead to more frequent deployments of servicewomen to austere field environments. Since 91% of AD servicewomen are of reproductive age between the ages of 18 and 40 (Department of Defense, 2017), they often must manage a menstrual cycle while deployed to an austere field environment. Hygienic management of menses can be problematic in the deployed environment and may be difficult, inconvenient, and lead to genitourinary tract infections.

Servicewomen may desire to utilize a form of contraception associated with a decreased amount of bleeding during menstrual cycles in order to reduce these problems associated with managing menses. There are various hormone containing contraceptive methods available that may assist a servicewoman decrease the number of menstrual cycles or eliminate them completely. According to Hatcher et al. (2011) hormonal contraceptives include injectable depot medroxyprogesterone (DMPA), the subcutaneous contraceptive implant, and the levonorgestrel intrauterine device (LNG-IUD) are known to decrease incidences of menstrual bleeding. An oral contraceptive (OC), the vaginal ring, and the transdermal patch may also be used in a manner to suppress menstruation.

These hormonal contraceptive methods may be divided into two groups; long-acting reversible contraception (LARC) or short-acting reversible contraception (SARC). LARC includes the LNG-IUD and the contraceptive implant, and these methods were reportedly used by 4% of servicewomen during deployment (Grindlay & Grossman, 2013). Injectable DMPA was used by 10% of deployed servicewomen. SARC includes combined hormonal methods that are typically taken on a monthly basis that include a week of withdrawal bleeding. This method may be modified to suppress menses by eliminating the withdrawal-bleeding week by continuing to take active OC pills, or placing a new vaginal ring or transdermal patch in an acyclical manner in order to avoid withdrawal bleeding that month. OCs, the patch, or the vaginal ring are reportedly used by 39% of servicewomen during deployment (Grindlay & Grossman, 2013).

Different brand names of LARC are available at no cost for servicewomen through their military insurance. The LNG-IUD includes Kyleena, Liletta, Mirena, and Skyla (Association of Reproductive Health Professionals, 2017). Mirena and Kyleena have been approved for five years of use, while Liletta and Skyla may be used for three years. The subcutaneous implant includes Implanon and Nexplanon and lasts up to three years (Hatcher et al., 2011). However, Implanon has been discontinued in the U.S. (Implanon, 2017). All AD servicewomen are covered by TRICARE insurance, and these specific brands may be on the formulary, depending on the local MTF pharmacy (TRICARE, 2017).

### **Statement of the Problem**

Deployment to a war zone may lead to the unhygienic management of menstruation due to limited access to sanitary equipment and inconvenience (American College of Obstetricians and Gynecologists (ACOG), 2012). Servicewomen often do not have ready access to a restroom or the capabilities to maintain good personal hygiene while deployed (Trego & Jordan, 2010).

Self-care measures during deployment have been reported as more challenging to servicewomen than access to menstrual supplies (Trego, 2007).

When AD servicewomen deploy to austere field environments, many desire a contraceptive method to help suppress menstruation (Powell-Dunford, Deuster, Claybaugh, & Chapin, 2003). However, the majority of AD servicewomen do not receive menstrual suppression education prior to deployment (Holt, Grindlay, Taskier, & Grossman, 2011). Servicewomen reported a lack of awareness that contraceptives were available for deployment, or they did not find out about their options until much later after they had arrived at their deployed location (Grindlay & Grossman, 2013). Most of these servicewomen reported learning about menstrual suppression from their peers and not from their health care provider.

Unhygienic management of menses can be inconvenient and lead to discomfort and the development of genitourinary tract infections in AD servicewomen (Braun, Kennedy, Womack, & Wilson; 2016; Das et al., 2013; Trego & Jordan, 2010). It is important to note that toxic shock syndrome (TSS) may also result from the production of toxins when bacteria invade after a tampon is not changed in a timely manner (Lillitos, P., Harford, D., & Michie, C., 2007). Poor menstrual hygiene practices may also lead to infection by creating an abnormally moist urogenital environment that promotes an imbalance in the flora and allows opportunistic infection by bacterial vaginosis (BV) (Das et al., 2015). In order for an infection to occur, pathogens must colonize, invade, multiply, and spread (McCance & Huether, 2006). Exogenous microorganisms are introduced to the genitourinary tract from menstrual pads and tampons not changed frequently and poor hand washing hygiene. Infection ascends into the vagina and allows organisms to migrate to the urinary tract and reproductive organs. Bacteria and particularly fungal organisms favor the hot, moist environment, and replicate quickly (Wardell &



Czerwinski, 2001). These pathogens directly damage the cells and interfere with cellular metabolism (McCance & Huether, 2006). The pathogenic substances and toxins produced accumulate in the cell and cause cellular dysfunction (McCance & Huether, 2006).

The **purpose** of this project was to determine the current practice of health care providers at a Midwestern U.S. Army Military Treatment Facility (MTF) regarding recommendations for menstrual suppression for AD servicewomen. There are various options for menstrual cycle suppression for servicewomen deploying to an austere field environment and it is not known what current recommendations are being made in military clinical practice. This project clarified current military practice in one clinic and encouraged discussions among providers about how to assist AD servicewomen reduce or eliminate their menstrual cycles. This project highlights best practice for helping servicewomen avoid the difficulty, inconvenience, and risk for infection associated with managing menses in an austere field environment.

### **Project Aims**

This DNP Project (project) identified the intent of health care providers when they prescribe contraception to AD servicewomen. Traditionally, contraception is prescribed for pregnancy prevention, although it is also used for menstrual suppression. Many servicewomen and health care providers may not realize the risk of managing a menstrual cycle in an austere field environment, and believe contraception is useful mainly for birth control. Servicewomen and health care providers may believe since servicewomen will be away from their husbands or significant others, there may be no need to take a contraceptive while deployed.

The issue of recommending appropriate contraceptives for menstrual suppression is not unique to those providers on AD or those working at an MTF. Members of the National Guard and military Reserves see a civilian provider when they are not on AD orders. These providers

should make appropriate recommendations regarding menstrual suppression to the servicewoman. The overall aim of this project was to survey MTF health care providers and determine their current practice for menstrual suppression options for AD servicewomen who deploy to an austere field environment. Also part of this project was to encourage discussion with military health care providers concerning the various menstrual suppression options available to AD servicewomen.

## **Background**

### **History of Contraceptives**

Of the contraceptive methods discussed in this DNP Project, OCs were the first to receive approval by the Federal Drug Administration (FDA). The OC Enovid was first introduced in 1957 as a treatment for gynecological disorders (Buttar & Seward, 2009), and was approved by the FDA in 1961 for use as a contraceptive (Roepke & Schaff, 2014). Enovid contained a very high dose of the estrogen mestranol, in addition to the progestin norethynodrel. This made for an extremely effective contraceptive, but within the first year there were six deaths and twenty reported cases of thromboembolism (Christin-Maitre, 2013). This has led to the evolution of current OCs which contain smaller doses of estrogen and are less likely to cause adverse side effects.

There is evidence of IUDs existing in the early 1900s, but a more recent version made of plastic, called the Lippes Loop, was first introduced in 1962 (Hatcher et al., 2011; Roepke & Schaff, 2014). The Dalkon Shield was perhaps the most notorious of these early IUDs and was never approved by the FDA as they did not regulate medical devices in the early 1970s. The Dalkon Shield had a multifilament tail string and it served as a wick to bring bacteria into the vagina (Roepke & Schaff, 2014). Women using the Dalkon Shield had five times the risk of

developing pelvic inflammatory disease (PID) than women who used an IUD other than the Dalkon Shield (Lee, Rubin, Ory, & Burkman, 1983). The Dalkon Shield was removed from the market in the U.S. in 1975 after reports linked it to sepsis and deaths from septic abortion (Savage, 2014). The IUDs used today have a single string and are not associated with an increased risk of PID (ACOG, 2016). Mirena was approved by the FDA in 2001, Skyla in 2013, Liletta in 2015, Kyleena in 2016 (Henry J. Kaiser Family Foundation, 2016) and these modern LNG-IUDs are associated with fewer risks than their earlier counterpart.

The subcutaneous contraceptive implant began with the introduction of Norplant in 1990 (Hatcher et al., 2011). Norplant contained six levonorgestrel rods that were implanted under the skin. It was removed from the U.S. market in 2002 due to problems associated with poor technique during insertion (Association of Reproductive Health Professionals, 2008). A single rod implant, Implanon, was first approved by FDA in 2004 and has since been replaced in the U.S. with Nexplanon as it is radioopaque.

Other contraceptive options such as DMPA, the vaginal contraceptive ring, and transdermal contraceptive patch have gained FDA approval more recently. DMPA is the most commonly used injectable contraceptive and was approved for use by the FDA in 2005 (Hatcher et al., 2011). The vaginal contraceptive ring was approved in 2001 and the transdermal contraceptive patch approved in 2002.

### **Conceptual and Operational Definitions of Key Concepts**

There are several key concepts that were defined to clarify their use for the reader in this DNP Project. The definitions of austere field environment, health care provider, LARC, menstrual suppression, SARC, and servicewoman will be discussed. There are both conceptual and operations definitions listed.

**Austere field environment.**

Conceptual definition: An austere field environment is an area that consistently experiences extreme hot or cold temperatures, altitude, or aerosole particles. The area may have limited access to a reliable source of electricity. Austere field environment also refers to an area where the mandatory prolonged use of body armor or chemical protection equipment by military personnel is required due to high force protection levels (U.S. Department of the Army, 2007).

Operational definition: Austere field environment for this project is an area where servicewomen may deploy to, that lacks ready access to electricity, a restroom, or running water. This may be in field training stateside, convoy duty in a war zone, or serving a deployment at a small outpost in a third world country. It does not include deployments to areas with hardened facilities or ready access to toilets and running water.

**Health care provider.**

Conceptual definition: A health care provider is a person who provides health care in any form (The Free Dictionary, 2017).

Operational definition: A health care provider refers to any Advanced Practice Registered Nurse (APRN), physician, or Physician Assistant (PA) that provides care to AD servicewomen or prescribes contraceptives at the MTF. Nurses, nurse assistants, medics, and any other person that works in the health care system are not included for the purpose of this project.

**LARC.**

Conceptual definition: LARC is long-acting reversible contraception that lasts for several years and is reversible at any time (ACOG, 2016). LARC includes the subcutaneous implant, copper IUD, LNG-IUD (ACOG, 2016), or the DMPA injection (Family Planning Association, 2014).

Operational definition: LARC includes the LNG-IUD and the etonogestrel releasing subcutaneous implant. Although a copper IUD is defined as LARC, it will not be considered for this project as it does not release hormones, and is not thought to reduce menstrual bleeding. DMPA was also considered LARC for the purpose of this paper, as the effects of one injection last for 13 weeks, although it is not readily reversible at any time.

### **Menstrual suppression.**

Conceptual definition: Menstrual suppression is the act of using a method of contraception to eliminate or decrease the amount of bleeding a female has associated with her menstrual cycle.

Operational definition: Menstrual suppression is defined as the lengthening of time between menstrual cycles, a decrease in the amount of menstrual bleeding, or elimination of bleeding completely (Trego, 2007; Hatcher et al., 2011; Jain & Wotring, 2016). Various methods may be used to achieve menstrual suppression and are classified as LARC or SARC (Hubacher, Spector, Monteith, Chen, & Hart, 2016).

### **SARC.**

Conceptual definition: SARC is short-acting reversible contraception such as the combined pill, vaginal ring, patch, or progestogen-only pill (Pillai, 2012).

Operational definition: SARC is defined as oral birth control pills, the transdermal contraceptive patch, or the vaginal ring. It is any form of hormonal contraceptive that requires daily or weekly dosing.

### **Servicewoman.**

Conceptual definition: A servicewoman is a woman who is serving as a member of the armed forces (Merriam-Webster, 2017).

Operational definition: A servicewoman refers to any female member in any of the four branches of the U.S. military (Air Force, Army, Coast Guard, Navy/Marines). This definition specifically includes any female Air Force airman, female Army soldier, female Coast Guardsman, female Navy sailor or female Marine.

## **Review of the Literature**

Using various databases (including Cochrane Library, The Cumulative Index to Nursing and Allied Health Literature, Google Scholar, and PubMed) the literature was reviewed. The major keywords included “menstrual suppression AND military”, “menstrual suppression AND deployment”, “menstrual suppression AND servicewomen”, and “austere environment AND amenorrhea”. Articles that were reviewed included publications in 2001 or later in peer reviewed resources. These articles were either primary research or review articles. Military resources were also reviewed for literature specific to servicewomen and this project topic.

Seminal articles by Powell-Dunford et al. (2003), Christopher and Miller (2007), and Trego (2007) have remained mainstays in the literature regarding menstrual suppression in AD servicewomen. The articles identified and addressed the unique problem servicewomen face with managing a menstrual cycle when deployed to an austere field environment. Powell-Dunford et al. (2003) interviewed servicewomen about their attitudes towards menstrual suppression using continuous OCs. Unique barriers specific to females in the military were identified, contributing to the foundation of knowledge. Christopher and Miller (2007) suggested LARC may be a suitable method for menstrual suppression during deployment, noting it may take up to 12 months to achieve amenorrhea. Trego (2007) also identified needs of deployed females and the benefits of continuous OCs to suppress menstruation.

Trego (2007) offered a unique perspective and wanted to obtain a better understanding of servicewomen's experience with managing menses while deployed. Nine servicewomen were interviewed and seven common themes to their responses were identified. First, deployed females believed their menses actually worsened during deployment and that the stress affected their menstrual symptoms. Second, it was difficult to provide self-care while deployed and personal hygiene and menstrual products were problematic. Third, challenges to menstruation included "dirt, heat, and Port-a-Potties". Fourth, menstruation was noted as a hassle and inconvenience while deployed. Fifth, servicewomen felt acutely aware of being in the minority of military members that must negotiate menses in the military world. Sixth, the servicewomen were not able to identify any positive aspects to managing a menstrual cycle while deployed. Seventh, the servicewomen interviewed were interested in menstrual suppression, but did have concerns about its safety.

### **Menses are Problematic During Deployment**

A common theme throughout the literature was that most servicewomen found menstrual cycles to be problematic during deployment (McGraw, Koehlmoos, & Ritchie, 2016; Powell-Dunford et al., 2003; Trego, 2007; Trego & Jordan, 2010; Wilson & Nelson, 2012). Powell-Dunford et al. (2003) noted 66.6% of the servicewomen in their sample rated changing their sanitary product in a field setting as "very difficult" to "impossible". Trego and Jordan (2007) stated 60.5% of the deployed servicewomen agreed they were unable to change their pad or tampon when needed. Menstrual cycles were perceived as inconvenient, as much preplanning was required due to working long hours and lack of access to toilets (Trego, 2007; Trego & Jordan, 2010; Wilson & Nelson, 2012). Limited feminine hygiene supplies were available at Post Exchanges and shipments were often irregular, further complicating menstrual management

(Wilson & Nelson, 2012). Heat, sand, dirt, and sweat also caused servicewomen discomfort in regards to maintaining personal hygiene during menstruation (Trego, 2007).

### **Improper Management of Menses may cause Infection**

Improper management of menses may lead to health problems such as urinary tract infections and infections of the reproductive tract (House, Mahon, & Cavill, 2012). Sumpter and Torondel (2013) conducted a systematic review of the literature and noted the correlation between reproductive tract infections and poor menstrual hygiene practices in the majority of the articles. However, the researchers noted the possibility that other variables may have caused the infection, such as sexually transmitted infections, and endogenous or iatrogenic infections (Sumpter & Torondel, 2013). Since BV and vulvovaginal candidiasis (VVS) are not sexually transmitted, their presence is often attributed to poor personal hygiene during a menstrual cycle. According to Sumpter and Torondel (2013) there appeared to be a weak relationship between reproductive infections and poor menstrual hygiene. However, Patkar (2011) and Das et al. (2015) noted that poor menstrual hygiene was associated with urinary and lower reproductive tract infections, as well as BV and VVC.

### **Contraception may Decrease Risk of Genitourinary Tract Infection**

Particular types of contraception may help an AD servicewoman avoid genitourinary tract infections by preserving her vaginal flora (Donders et al., 2017). The microbiota of the vagina is established through hormonal mechanisms, particularly influenced by those contraceptives that contain estrogen (Fosch, Yones, Trossero, Grosso, & Perazzi, 2015). Combined OCs are thought to retain the normal flora of the vagina and decrease the risk of developing BV, although they predisposed the women to colonization by yeasts (Fosch et al., 2015). A vaginal pH of greater than 4.5 is a criterion for diagnosing BV (O'Hanlon, Moench, &



Cone, 2013). Vaginal ring users typically had a greater presence of vaginal discharge, which is considered protective in terms of warding off genitourinary tract infections, including those of a sexually transmitted nature (De Seta et al., 2012). Donders et al. (2017) examined the impact of a women's contraceptive choice and her vaginal microflora. The authors found women that used combined OCs or the LNG-IUD had the same vaginal microflora as women who did not use contraceptives. Women that used the subcutaneous implant had a lower yeast colonization rate than users of the LNG-IUD. Dickey (2011) noted that all forms of hormonal contraception reduced the incidence of BV.

### **Problems with Continuous OCs for Deployed Servicewomen**

The most popular method for menstrual suppression among deployed servicewomen was continuous use of OCs (Holt et al., 2011). Wright and Johnson (2008) found that 58-88% of women achieved amenorrhea after one year. OCs reduced the risk of developing BV but increased the presence of yeast (Dickey, 2011). While traveling to an austere environment, servicewomen often endured long, cramped plane and bus rides in which it was difficult to move around. These conditions may have facilitated development of a venous thromboembolism (VTE), which encompasses the terms deep vein thrombosis (DVT) and pulmonary embolism (PE) (Peragalla Urrutia et al., 2013). According to the Cochrane Database of Systematic Reviews, the risk of VTE more than doubled in all women who take combined OCs (de Bastos et al., 2014) and the risk of VTE is highest in the first three to 12 months of use (Hatcher et al., 2011). The risk of developing a thrombus was overall low, at 0.19 to 0.37 in 1000 in women not on combined OCs and 0.38 to 0.74 in 1000 in women that took a combined OC. As many women gained as lost weight with this contraceptive method (Dickey, 2011).

However, deployment to an austere environment presented challenges that are not encountered stateside. Due to long workdays and travel between time zones, taking a pill daily was noted to be difficult for 67% of servicewomen (Powell-Dunford et al., 2011). Obtaining enough pills to last an entire deployment was problematic for some servicewomen (Grindlay & Grossman, 2013; Wilson & Nelson, 2012). Manski et al. (2014) found that most participants considered it easy to access all forms of contraceptives for deployment, although one servicewoman in the study stated she had to discontinue taking her continuous OCs as she ran out and could not get to the pharmacy for refills. Some deployed servicewomen were given the recommendation to use a mail order pharmacy for refills (Wilson & Nelson, 2013) and females noted resupply shipments to the pharmacy were slow or they had run out of OCs (Grindlay & Grossman, 2013). Servicewomen who chose to take OCs continuously required more than a 12-month supply, as they eliminated the placebo week and instead started a new pack. This is another consideration to be made when prescribing OCs to deploying servicewomen.

### **LARC may be Beneficial during Deployment**

Many of the studies and articles suggested LARC, such as an LNG-IUD or subcutaneous implant, might be a viable option for servicewomen during a deployment as it has many benefits over continuous OCs (Christopher & Miller, 2007; Grindlay & Grossman, 2013; Jain & Wotring, 2016; Manski et al., 2014). LARC requires little maintenance after insertion and is discrete and dependable (Christopher & Miller, 2007; Jain & Wotring, 2016; Manski et al., 2014). The LNG-IUD is placed in the woman's uterus, and the contraceptive implant is placed subcutaneously in her upper arm.

There was variation among the studies regarding rates of complete amenorrhea that were achieved with the LNG-IUD. Jain and Wotring (2016) suggested the rate of amenorrhea was up

to 80% at the end of the first year and Christopher and Miller (2007) found that 20% of servicewomen had complete suppression of menses at one year. Half of women had achieved complete amenorrhea at one year (Hidalgo et al., 2002). Although it was noted women had not achieved complete menstrual suppression with the LNG-IUD, bleeding may be light enough to be more manageable and should be considered a reliable alternative to the continuous use of SARCs for deploying servicewomen (Christopher & Miller, 2007; Grindlay & Grossman, 2013; Jain & Wotring, 2016; Manski et al., 2014). Less than 1% of women developed PID (ACOG, 2016) although there is an increased risk of developing BV (Madden, Grentzer, Secura, Allsworth, & Peipert, 2012). The LNG-IUD was not associated with an increased risk of VTE (Hatcher et al., 2011). Average weight gain associated with this method was five pounds in five years (Hatcher et al., 2011).

The subcutaneous implant is another form of LARC that may be beneficial to deploying servicewomen. Amenorrhea was reported by 30% of women at one year (Weisberg et al., 2014). There were lower rates of yeast colonization among implant users (Donders et al., 2017) and fewer incidences of BV (Dickey, 2011). Data were limited on the risk of VTE in this group (Hatcher et al., 2011). Women using this contraceptive method gained an average of 2.8 pounds after one year of use (Dickey, 2011).

### **Other Options to Suppress Menstrual Cycle**

In addition to continuous OCs, the LNG-IUD, and subcutaneous contraceptive implant, there are other methods for menstrual suppression options that require more frequent dosing that servicewomen may utilize to avoid having a menstrual cycle. As with all methods, there are benefits and disadvantages to each of these different contraceptive options, which the servicewoman should carefully consider.

DMPA, considered LARC for this project, is the most common injectable contraceptive and the injection must be repeated every three months (Hatcher et al., 2011). Grindlay and Grossman (2013) found that 10% of deployed servicewomen used injectable contraceptives. DMPA is given via deep intramuscular injection and may suppress menses by inhibiting ovulation. Amenorrhea is noted in up to 55% of women after one year of uninterrupted use (Pfizer, 2015). DMPA decreased the risk of PID and prevented the ascension of pathogens by thickening cervical mucus (Hatcher et al., 2011). Irregular bleeding was the most frequently noted side effect of DMPA users (Thomson & Nielsen, 2006). DMPA is not on the formulary in many deployed locations, likely since it must be stored between 66°F and 77°F, therefore limiting servicewomen's access in an austere field environment (Drugs.com, 2017). Servicewomen reported being able to receive injections at their home station before deployment and then not being able to receive their next one once deployed. Women gained an average of five to eight pounds in the first two years on this method (Pfizer, 2015), and it does not appear to increase the risk of VTE (Hatcher et al., 2011).

The transdermal contraceptive patch is another option for servicewomen who desire menstrual suppression. Grindlay and Grossman (2013) and Holt et al. (2011) reported that up to 6% of servicewomen used the contraceptive patch while deployed. The contraceptive patch is adhesive and contains norelgestromin and ethinyl estradiol delivered transdermally (Hatcher et al., 2011). While traditionally placed for three weeks, and removed for the fourth week, the contraceptive patch may also be used continuously to eliminate the withdrawal bleeding week. Women that used the contraceptive patch reported fewer days of bleeding and up to 18% had amenorrhea at day 56 (Stewart et al., 2005). The incidence of developing BV is decreased in this group (Donders et al., 2017). Contraceptive patch users were exposed to 60% more estrogen than

OC users, and had eight times the risk of developing a VTE (Lidegaard, Nielsen, Skovlund, & Lokkegaard, 2012). However, it is important to note that the risk of developing a VTE is still quite small (Speroff, 2007) and estimated as 53 out of 100,000 women (Hatcher et al., 2011). Fifty-eight percent of servicewomen that used the contraceptive patch while deployed reported at least one episode where the patch fell off, which was the most frequent complaint among contraceptive patch users (Thomson & Nielsen, 2006).

The contraceptive vaginal ring may also be used for menstrual suppression. The vaginal ring was reportedly used by 2% of deployed females (Grindlay & Grossman, 2013). Etonogestrel and ethinyl estradiol is continuously released from the ring and suppresses ovulation (Hatcher et al., 2011). The ring is typically placed in the vagina for three weeks, and removed for the fourth, allowing a withdrawal bleed during the fourth week. It may be used acyclically to achieve menstrual suppression. Up to 15% of participants had amenorrhea or infrequent bleeding after one year of use (Weisberg, Merki-Field, McGeechan, & Fraser, 2015) and 4.8% of women experienced leukorrhea which is protective against infection (De Seta et al., 2012; Roumen, 2008). The risk of VTE was estimated as 149 out of 100,000 women (Hatcher et al., 2011). The vaginal ring was not available for some deployments due to the lack of access to the required refrigeration to store additional vaginal rings (Grindlay & Grossman, 2013). See Table 1 for a comparison of contraceptive methods.

### **Department of the Army Regulations for Menstrual Suppression**

Department of the Army publications were searched and no specific regulations in regards to menstrual suppression for AD servicewomen were identified (Administrative Assistant to the Secretary of the Army, 2017). The Midwestern Army MTF where this project was conducted does not have local regulations regarding or guidelines regarding this practice (■)

████ personal communication, January 31, 2017). However, the United States Army Medical Command (MEDCOM) developed a PowerPoint with guidance for promoting women's health in the austere field environment (U.S. Army Medical Department, 2017). Continuous OCs, DMPA, hormonal IUDs, the patch (Ortho Evra), NuvaRing, and Nexplanon were discussed, with the ultimate guidance of advising servicewomen to contact their health care provider if they were interested in trying one of these methods.

### **Management of LARC in an Austere Environment**

Concern regarding how to manage complications from LARC that arose in an austere environment was a frequently cited reason against their usage. The European Active Surveillance Study for Intrauterine Devices (EURAS-IUD) documented the risk factors for uterine perforation and serious adverse events by following 61,448 women that had an IUD placed over a period of eight years. The incidences of uterine perforation were 0.3 to 2.6 per 1,000 insertions for the LNG-IUD and were inversely related to the level of experience of the clinician placing the device (Heinemann, Reed, Moehner, & Minh, 2015). The authors found there were no serious complications associated with the perforations. Similar to the Jain and Wotring (2016) study on female astronauts, Hatcher et al. (2011) stated there was no evidence that an IUD would migrate outside the uterus after it is placed and that the perforation occurs at time of insertion, although it may not be discovered until follow-up (Heinemann et al., 2015). Nine percent of the IUDs that perforated the uterus were noted at time of insertion or immediately after, and the remainder were discovered at some time during the first year at the follow-up appointment (Heinemann et al., 2015). Hatcher et al. (2011) suggested a follow-up appointment one month after the IUD was placed to check the placement and assess for signs of infection.

A misconception about IUDs is that they increased the risk for PID. An IUD is not associated with increased risk of genitourinary tract infections (Hatcher et al., 2011). Less than one percent of women developed PID after the placement procedure (ACOG, 2016). The ACOG (2016) recently published a Committee Opinion with guidelines addressing how to treat IUD infection or perforation. Within the ACOG document, if a female develops PID, she may be treated with the IUD left in place. Previously it was thought that the IUD needed to be removed. If after a trial of antibiotics she does not improve within 48 to 72 hours then IUD removal should be considered. An IUD that has perforated the uterus should typically be removed surgically. However, LNG-IUD use was associated with an increased risk of developing BV (Madden et al., 2012).

The number of military personnel assigned to an outpost determines the availability of medical resources. AD servicewomen may find themselves assigned to various sized posts when they deploy to an austere field environment. The U.S. Army has designated Role 1, Role 2, Role 3, and Role 4 levels of care, with specific teams of medical personnel to be assigned to each (Office of the Surgeon General, 2014). The different roles distinguish the different capacities of care. Role 1 has a battalion aid station, and either a medic, PA, or physician. There is no surgical capability and the goal is to evacuate the patient to next higher echelon of care. Role 2 provides basic primary care and may be augmented with surgical capabilities. This role includes a 20-person team including an orthopedic surgeon, three general surgeons, and two nurse anesthetists with limited access to x-ray. Role 3 includes a hospital and inpatient and outpatient services able to treat all categories of patients. Role 4 hospitals are typically found stateside and primarily receive patients being evacuated from overseas. All APRNs, physicians and PAs are trained in management of LARC (University of Kansas School of Nursing, 2016; University of Missouri-

Kansas City, 2017; University of Missouri-Kansas City, 2017). Role 3 and 4 would be able to manage complications from LARC, and it is possible a Role 2 may be augmented with such services.

### **Servicewomen Desire Menstrual Suppression and Education**

Menstrual suppression was desired by the majority of servicewomen to achieve temporary amenorrhea (Powell-Dunford et al., 2003; Trego, 2007; Trego & Jordan, 2010; Powell-Dunford et al., 2011; Grindlay & Grossman, 2013). Temporary menstrual suppression in a field or deployed environment was desired by 86% of servicewomen (Powell-Dunford et al., 2003). However, studies identified a knowledge gap among participants on the topic of menstrual suppression and an inadequacy in predeployment education (Grindlay & Grossman, 2013; Holt et al., 2011; Krulewitch, 2016; Manski et al., 2014; Powell-Dunford et al., 2011; Wilson & Nelson, 2012). Holt et al. (2011) found that 26-33% of servicewomen reported that they received predeployment counseling on menstrual suppression and Grindlay and Grossman (2013) mirrored this finding with 78% of servicewomen not discussing menstrual suppression with a health care provider before deployment. Throughout the literature there was a greater desire for menstrual suppression than servicewomen who were suppressing their menstruation during deployment, indicating a need for more comprehensive education.



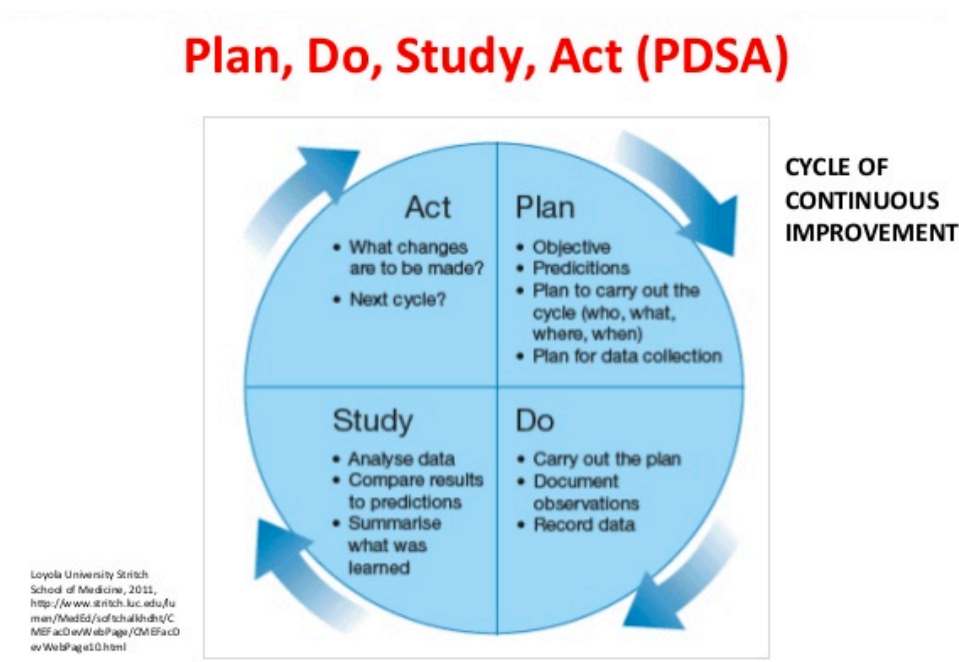
**Table 1****Comparative Contraceptive Methods**

	Amenorrhea	Infection	VTE	Military Considerations
Continuous birth control pills	Most women (58-88%) will obtain amenorrhea after one year (Wright & Johnson, 2008)	Decreased risk for BV and PID (Dickey, 2011), yeast increased in OC users (Dickey, 2011)	Risk of VTE dependent on dose and highest in the first 3-12 months of use (Hatcher et al., 2011)	Must pack all pills for deployment, or obtain refills at deployed location dependent on supply, as many women gain weight as lose weight with this method (Dickey, 2011)
Contraceptive rod implant	Amenorrhea was reported by 30% of women at one year (Weisberg et al., 2014)	Lower rates of yeast colonization (Donders et al., 2017), decreased risk of BV (Dickey, 2011)	Limited data available on risk of VTE (Hatcher et al., 2011)	No concern with storage or refrigeration as it would be placed prior to deployment, weight gain 2.8 pounds on average after one year (Dickey, 2011)
Injectable birth control	Up to 55% of women amenorrheic after 12 months of use	Decreased risk of PID, thickens cervical mucus to prevent pathogens from ascending into genital tract (Hatcher et al., 2011)	Does not appear to increase risk of VTE (Hatcher et al., 2011)	Average weight gain 5-8 pounds in first two years (Pfizer, 2015), must be stored between 66°F and 77°F (Drugs.com, 2017)
LNG-IUD	44% reported amenorrhea at six months and 50% at one year (Hidalgo et al., 2002)	Risk of PID is <1% (ACOG, 2016), increased risk of BV (Madden et al., 2012)	Not associated with increased risk of VTE (Hatcher et al., 2011)	No concern with storage or refrigeration as it would be placed prior to deployment, weight gain on average 5 pounds over five years (Hatcher et al., 2011)
Transdermal contraceptive patch used continuously	Fewer days of bleeding and 18% had amenorrhea at day 56 (Stewart et al., 2005)	Decreased risk of BV (Donders et al., 2017)	VTE risk estimated as 53 per 100,000 women (Hatcher et al., 2011)	58% of users found patch fell off at least once while deployed (Thomson & Nielsen, 2006)
Vaginal contraceptive ring used continuously	15% of participants had amenorrhea or infrequent bleeding after one year of use (Weisberg et al., 2015).	4.8% of women experienced leukorrhea, (Roumen, 2008) protective against infection (De Seta et al., 2012)	VTE risk estimated as 149 out of 100,000 women (Hatcher et al., 2011)	Refrigeration needed to store additional vaginal rings (Grindlay & Grossman, 2013)

*Note.* Darkened gray boxes highlight key benefits of the contraceptive method.

## Project Conceptual Framework

The Plan-Do-Study-Act (PDSA) cycle was used as the guiding framework for this project and is a cyclical series of steps to quality improvement (Melnik & Fineout-Overholt, 2011). There are four stages to the cycle, depicted in Figure 1 (Loyola Institute School of Medicine, 2011), starting with Plan. The planning stage is where the objective was stated and the plan to carry out the project was included. This is also the stage where the who, what, when, and where was established. This stage is followed by the Do stage, which is where the plan was carried out and data recorded. Study is next in the cycle, and is where data was analyzed and summarized. Act is last in the cycle, and is where changes were identified and made in future cycles.



*Figure 1.* Plan, Do, Study, Act (PDSA) cycle of continuous improvement.

The four steps in the PDSA cycle were applied to this quality improvement project. First (Plan), planning included a systematic review of the literature and development of a survey to identify current menstrual suppression practice among health care providers at a Midwestern MTF. Second (Do), data were collected and recorded using a brief survey on providers’

recommendations for menstrual suppression to servicewomen before they deploy to an austere field environment. For this project, there were 12 health care providers that were asked to complete the survey at one U.S. Army MTF. Third (Study), the data were analyzed and critical information identified and organized for presentation. The fourth and final step (Act) was to refine the change based on information collected and then conduct the testing again. Barriers to providing menstrual suppression to AD servicewomen were identified and discussed with the Education and Training Department at the MTF. This information was shared with military providers and they may consider the input from peers in their approach to helping AD servicewomen with menstrual suppression when they deploy to an austere field environment. Servicewomen should be informed of their options for menstrual suppression from their military health care providers. Through this identification of current practices related to menstrual suppression, this project can assist with identifying the method best suited for use in an austere field environment.

## **Methods**

### **Design and Rationale**

This project utilized a survey to collect quantitative data from the participants. This method requested that the health care providers recall situations encountered previously in practice and how they responded. The survey collected demographic information, as well as questions from previous practice related to servicewomen and their preference for menstrual suppression options that may be used in an austere field environment. The servicewomen's preference for menstrual suppression was reported by the health care provider. The objective was to identify the current practice of the health care providers at the U.S. Army MTF and their recommendations for menstrual suppression for AD servicewomen.

A survey was chosen as the data collection tool for this DNP Project, as it allowed for straightforward identification of current practice by health care providers. Since the survey was completed anonymously, this provided an environment where the health care providers felt comfortable to share their thoughts.

### **Sample**

This project included a convenience sample of health care providers that were employed at a Midwestern U.S. Army MTF. APRNs, Physicians, and PAs were invited to participate in this DNP Project. Participants must have assessed an AD servicewomen in clinic or prescribed contraceptives in order to meet inclusion criteria. The sample included all health care providers (APRNs, physicians, PAs) willing to participate from the possible 12 providers at this particular clinical site. Health care providers that cared for only pediatrics or retired military personnel were excluded from participation in this project.

### **Data Collection Plan**

**Methods.** The identified health care providers were asked to participate in this project and complete a survey while they were attending a monthly staff meeting. The survey was paper and pencil and required approximately five minutes to complete. All questions required selection of only one answer, except for two questions that asked the health care providers to rank order responses. There were no open-ended questions.

**Survey Form.** An 11-item survey was developed to obtain information about the current menstrual suppression practices of military health care providers. Demographic information such as birth sex, age range, role as a health care provider, and years in practice were included in the survey. However, no specific identifying data (name, social security number, badge number, etc.) concerning the patient or the health care provider was included in the survey. Practice specific

questions such as how many servicewomen they assessed daily in practice, how frequently servicewomen inquired about methods to suppress menses were also included in the survey. Health care providers were also asked how often they prescribed contraception, what their primary reason was for doing so, and if they routinely discussed menstrual suppression options with servicewomen. All questions were multiple choice, with the exception of two questions that asked providers to rank their personal preferred method of menstrual suppression for servicewomen deploying to an austere field environment as well as the servicewoman's preferred method. The survey underwent a small pilot test before beginning data collection for the project to ensure participants interpreted the questions as intended.

**Procedure.** Paper surveys were distributed to all health care providers in attendance at a monthly staff meeting. The meeting was held in a large conference room and the Project Director and the U.S. Army MTF Health Center Educator ensured distribution of surveys. Participants were provided an introductory letter that reminded them participation was completely voluntary and anonymous, and they may cease participation at any time.

### **Privacy, Data Storage and Confidentiality**

All data collected were anonymous and no Protected Health Information was collected or stored. All returned surveys were stored in a locked box located in the Education and Training Department at the U.S. Army MTF. The Project Director had access to the surveys. After completion of this project, the data collection forms and data were given to the DNP Project Co-Chair. The data were placed on the KUMC S: drive and hard copies will be stored at KUMC School of Nursing for seven years.

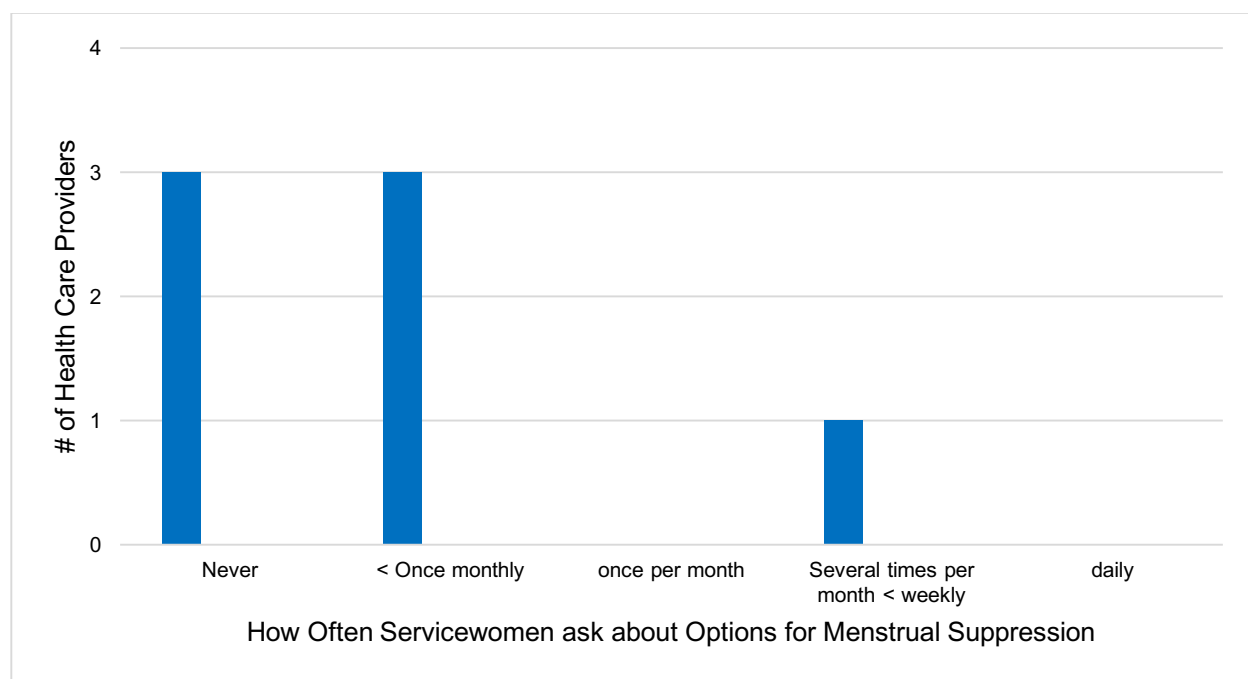
## Results

Seven health care providers at the U.S. Army MTF chose to participate by completing the survey about their personal practice of recommending menstrual suppression to servicewomen prior to their deployment to an austere field environment. Descriptive statistics were used to analyze the data due to the small sample size. Frequency of answers was demonstrated using a bar or pie chart to visualize answers to the survey questions as answers were discreet.

While seven surveys were completed in their entirety, an additional four surveys were returned blank to the collection box. Demographic information was analyzed, and two males and five females returned the survey completed in its entirety. Three health care providers responded that they were 50 years of age or greater, and the other four participants were evenly divided among the 30 – 39 years and 40 – 49 years old age ranges. No health care providers identified as being in the 21 – 29 years old range. Roles of health care providers were one APRN, two Doctors of Medicine, three Doctors of Osteopathy, and one PA. One provider had been in practice from 0 – 5 years, two from 6 – 10 years, one for 11 – 15 years, and three for 16 years or more.

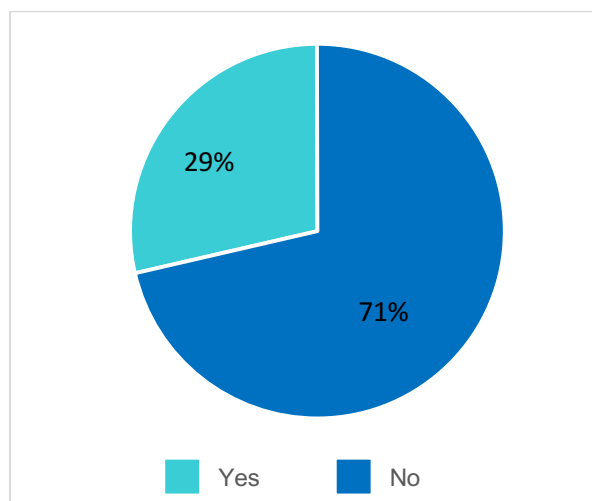
All participants stated they provided care for at least one servicewomen daily in their practice. While one participant responded that he saw one servicewoman on average daily, two health care providers admitted they saw at least 2 – 4 servicewomen daily, and four stated they saw five or more daily at their practice. Figure 2 demonstrates the frequency that these health care providers are asked about menstrual suppression options. Three health care providers recalled that no servicewoman has asked about methods to suppress menstruation, and three health care providers recalled that they were asked less than monthly about methods to suppress

a menstrual cycle. One health care provider recalled being asked several times per month but less than weekly about menstrual suppression.



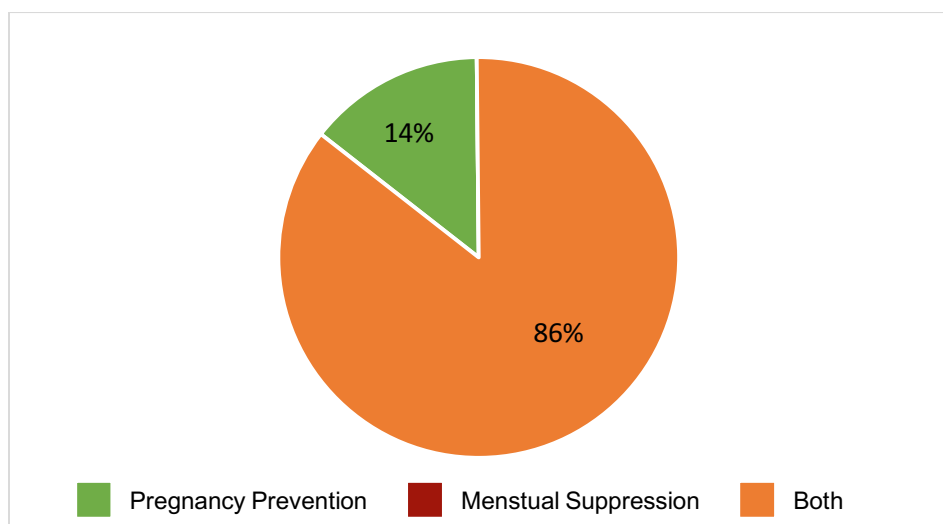
*Figure 2.* Frequency of how often servicewomen ask their health care providers about methods to suppress their menstrual cycle.

Most health care providers denied routinely discussing menstrual suppression options with servicewomen. Two health care providers admitted they did routinely discuss menstrual suppression options with servicewomen, while five health care providers did not routinely do so (Figure 3). All seven health care providers stated they prescribed contraception to servicewomen less than one time per month. Three of those health care providers did so several times per month but less than weekly, one health care provider responded that he did so once per week, and one did so daily.



*Figure 3.* Do health care providers routinely discuss menstrual suppression options with servicewomen before they deploy to an austere field environment?

Health care providers were asked the primary reason that they prescribed birth control to AD servicewomen (Figure 4). One health care provider stated he prescribed contraception for pregnancy prevention only, while six health care providers stated they did so for both pregnancy prevention and menstrual suppression. None of the health care providers admitted to prescribing contraception for menstrual suppression only.

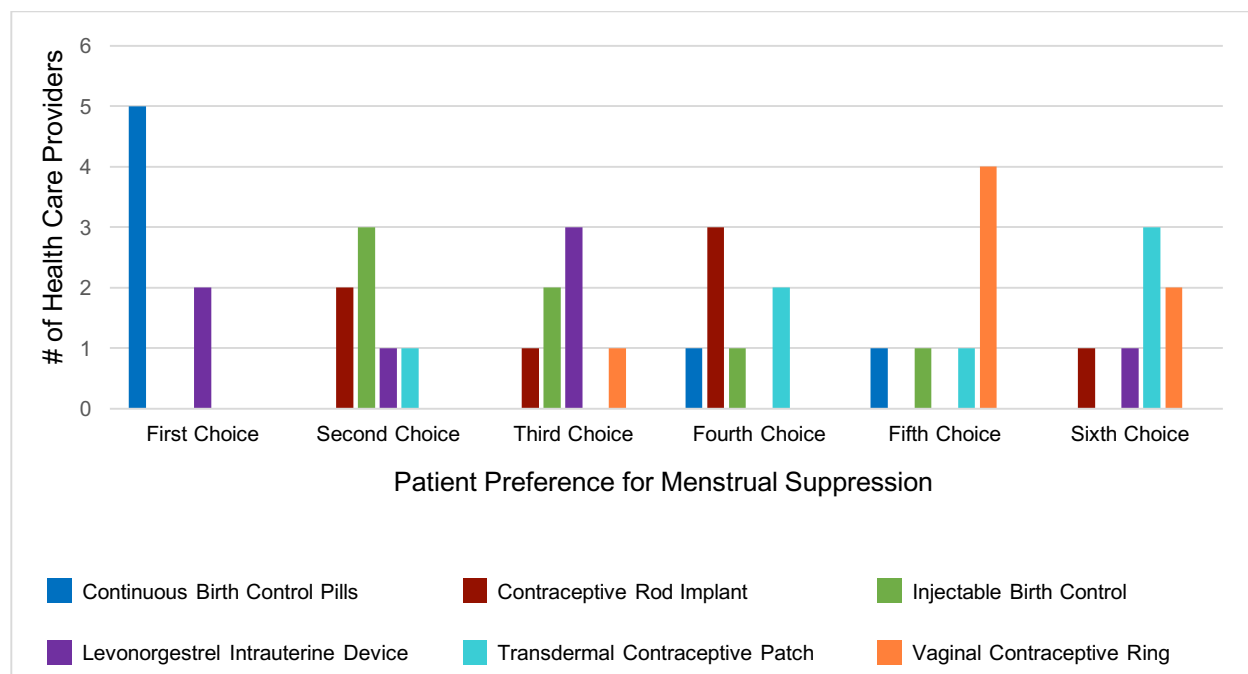


*Figure 4.* Health care providers' primary reason for prescribing contraception prior to deployment to an austere field environment for AD servicewomen.

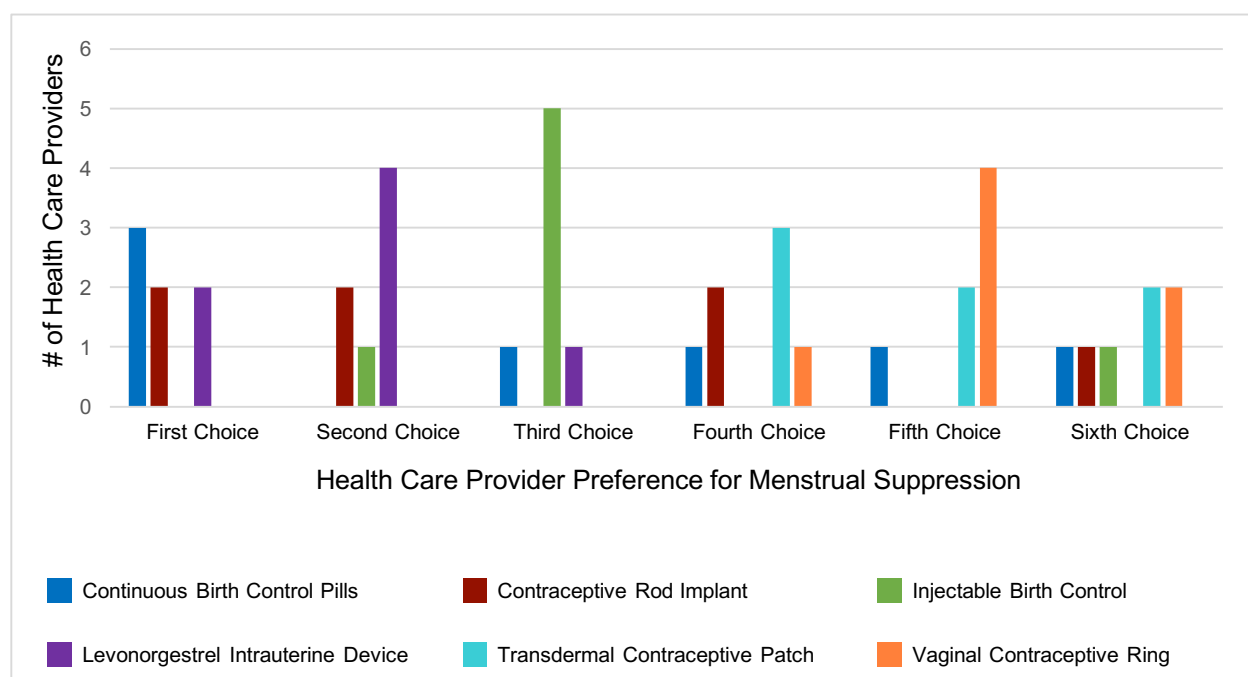


Patient preference differed from health care provider preference in regards to menstrual suppression techniques (Figure 5 and Figure 6). LARC was selected by most health care providers as one of their top three preferred methods for menstrual suppression. Continuous OCs were the most common response from health care providers in regards to what method their patients preferred for menstrual suppression. Use of the vaginal contraceptive ring continuously for menstrual suppression was the most unpopular choice of the six contraception options among health care providers. All health care providers ranked it as one of their last three choices, with most ranking it fifth. Most health care providers stated patients also ranked it as their fifth choice for menstrual suppression, although one ranked it as high as his third choice.

Figures 5 and 6 are bar charts of the two ranking style questions regarding menstrual suppression preference among patients and health care providers. Figure 5 displays the frequency of how the health care provider responded for their patient preference for menstrual suppression. Each health care provider recalled the methods their patients preferred for menstrual suppression when completing the survey. Figure 6 displays the frequency of which method the health care provider preferred for menstrual suppression and does not reflect patient preference.

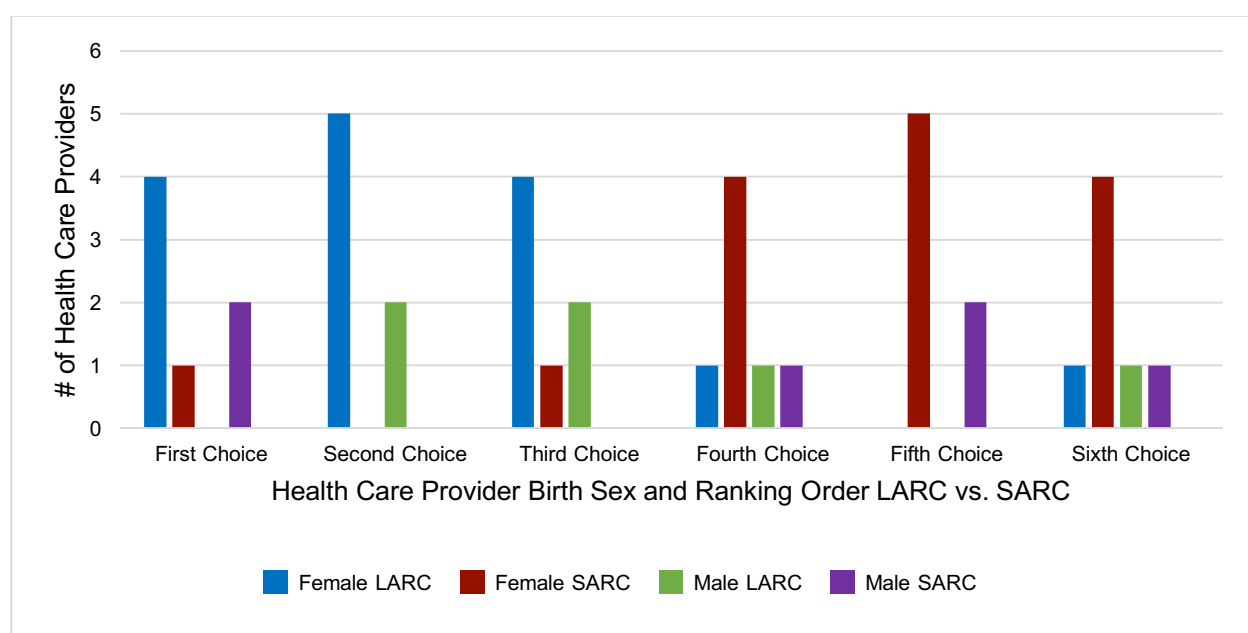


*Figure 5.* Ranking order of patient preference for menstrual suppression. All SARC included were in reference to their use in a continuous manner.



*Figure 6.* Ranking order of health care provider preference for menstrual suppression. All SARC included were in reference to their use in a continuous manner.

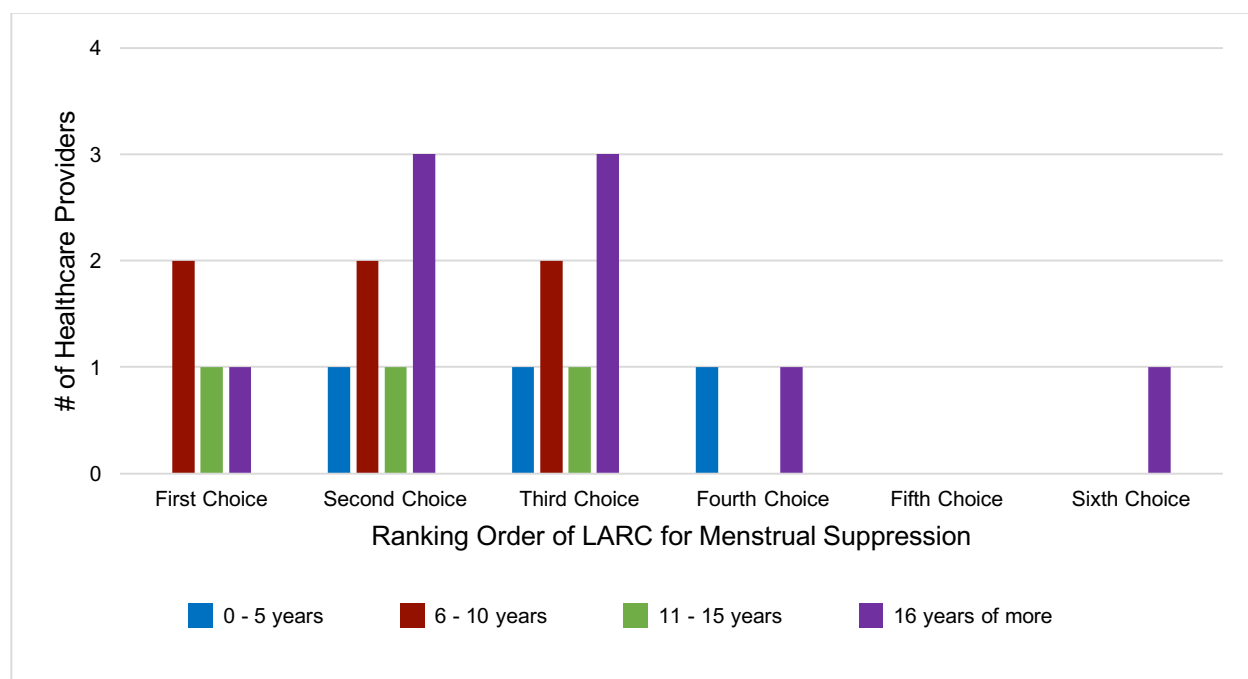
Recommendations for menstrual suppression differed based on the health care provider's birth sex. The majority of female health care providers chose LARC as their first choice for menstrual suppression, while all male health care providers preferred SARC as their first choice. Male health care provider's personal preference for menstrual suppression options were more congruent with patient preference when compared to the personal preferences of female health care providers. Figure 7 displays the number of health care providers that responded, as well as their birth sex and whether or not they preferred LARC or SARC for menstrual suppression.



*Figure 7.* Birth sex and health care provider's preference for LARC vs. SARC for menstrual suppression.

Regardless of the years spent in practice, most health care providers would recommend LARC before SARC for menstrual suppression. There was very little difference between years of experience and menstrual suppression preference. However, of the two health care providers that ranked a SARC as their first choice, they were at either extremes of the experience spectrum, one with 0 – 5 years experience, and the other with 16 years or more experience working as a health

care provider. Figure 8 depicts male vs. female health care providers' preferences for LARC and SARC methods for menstrual suppression.



*Figure 8.* Years in practice as a health care provider and ranking order of LARC for menstrual suppression.

## Discussion

Results from this survey were similar to those found in the literature as most health care providers surveyed did not routinely discuss menstrual suppression options with servicewomen prior to their deployment to an austere field environment (Powell-Dunford et al., 2003; Trego, 2007; Trego & Jordan, 2010; Powell-Dunford et al., 2011; Grindlay & Grossman, 2013). Holt et al. (2011) found that up to 33% of servicewomen had received education from their health care provider on menstrual suppression and 29% of the health care providers surveyed in this project admitted they routinely discussed menstrual suppression options. While it is not known from the survey the percentage of servicewomen that desired education on menstrual suppression, there is

clearly an opportunity for more health care providers to engage their patients in a discussion on the topic.

The majority of health care providers that participated in the survey preferred LARC for menstrual suppression for deploying servicewomen. Several studies suggest there may be a benefit to using LARC for menstrual suppression (Christopher & Miller, 2007; Grindlay & Grossman, 2013, Jain & Wotring, 2016; Manski et al., 2014). However, the literature continues to show servicewomen use continuous OCs most frequently for menstrual suppression (Trego, 2007), findings which were also supported by this project. The health care providers in this project also responded that servicewomen tend to prefer continuous OCs to other contraceptive methods. While health care providers prefer LARC for menstrual suppression, it is not the most popular method prescribed to servicewomen. There is a discrepancy between health care providers' preference and what servicewomen actually use in everyday practice for menstrual suppression. Perhaps servicewomen are not aware of their menstrual suppression options or how effective each of the methods would be in an austere field environment.

The gender of the health care provider also appears to influence personal preference for menstrual suppression. Similar to the composition of the military as a whole, the majority of AD health care providers are male (Gibbons, Hickling, Barnett, Herbig-Wall, & Watts, 2012). However, male health care providers were responsible for completing only two of the seven returned surveys. Both male health care providers selected SARC as their first choice for menstrual suppression, while the majority of female health care providers preferred LARC. Male responses on this topic that primarily concerns servicewomen were underrepresented and may not represent how male health care providers typically respond when asked about methods for menstrual suppression. However, since the majority of military health care providers are

male, and the males in this project preferred SARC for menstrual suppression, that may offer some insight as to why most servicewomen utilize SARC for this purpose.

The routine discussion of menstrual suppression options with servicewomen also differed by health care provider's birth sex. Of the seven health care providers surveyed, the two that stated they routinely discussed menstrual suppression options with servicewomen were both female. Female health care providers may be more comfortable discussing menstrual suppression options with servicewomen than male health care providers. Health care providers that are female may be more attuned to the specific needs of servicewomen and more likely to engage them in discussion about menstrual suppression options.

Pregnancy prevention and menstrual suppression were both cited as the primary reasons for prescribing contraception to servicewomen before their deployment to an austere field environment by six of the seven health care providers. However, almost half of health care providers responded that they were never asked about methods of menstrual suppression by servicewomen. Due to the nature of the survey, health care providers were not able to expound or further clarify their answers. Many servicewomen reported reluctance to bring up the topic of contraception with their health care provider due to sexual activity being prohibited during deployment, or their mistaken belief that they may not need contraception while deployed (Grindlay & Grossman, 2013). Although sexual activity is typically prohibited in a deployed environment, 10.1% of servicewomen have an unintended pregnancy (Braun et al., 2016). Health care providers may be aware of these statistics, and intuitively factor both pregnancy prevention and menstrual suppression in when they decide to prescribe contraception to servicewomen, even though the servicewomen may not have specifically stated this in her requests.

There were certain limitations that this project contained such as limited generalizability and recall bias. Trends in data were described but no conclusions drawn due to the small scale of this project. Servicewomen stationed at this U.S. Army post may be inherently different than women stationed at other military installations. The [REDACTED] is located on this post, and is exclusively for military officers, most of whom are in the U.S. Army. Nearly all officers have a minimum of a bachelor's degree and may have achieved higher levels of education than most servicewomen. Servicewomen with more education may be more aware of their different options to suppress their menses and more apt to seek out information regarding menstrual suppression. All of these factors increase the likelihood of sample homogeneity.

Using a survey for a data collection tool allowed for an efficient way to collect detailed information from participants, however there are some disadvantages associated with its use. Utilization of a survey as a data collection instrument required the health care providers to remember how they responded in certain situations and was therefore subject to recall bias. The bias may be intentional or unintentional, and the participant may respond to the survey in a way that they believe is favorable, even if it is not the actual way in which they responded in practice. Health care providers that agreed to participate in the survey may not be a true representative sample of all military health care providers. The pool of potential participants was small, as this Midwestern U.S. Army MTF had 12 health care providers that were eligible to participate in this project. Health care providers may have chosen to not participate in the study for many reasons such as limited time, interest in the topic, or knowledge of the subject matter.

### **Dissemination of Results**

Results of the survey were collected, analyzed, and then shared with the Education and Training Department in the form of a PowerPoint presentation. The U.S. Army MTF Health

Center Educator disseminated the presentation via email to all health care providers at the MTF who provide care for AD servicewomen.

### **Recommendations**

This project was a small pilot study of seven health care providers and their practice of making recommendations for menstrual suppression to servicewomen prior to them deploying to an austere field environment. Since the sample size was small, the responses are not likely representative of all health care providers that care for AD servicewomen. This project should be completed with a larger sample and at an MTF that also provides care for servicewomen from the other branches of the U.S. military. Other branches of service may make different recommendations in regards to menstrual suppression and that may be identified through future research.

LARC should continue being recommended to servicewomen for menstrual suppression by health care providers. Female health care providers tend to prefer this method of menstrual suppression for servicewomen prior to deployment. However, patient preference continues to be use of continuous OCs. LARC methods are relatively new when compared to OCs, and may not be widely known about by most servicewomen. Through education and an ongoing discussion with their health care provider, servicewomen may be more accepting of a LARC for use as menstrual suppression.

Health care providers should include routine counseling on menstrual suppression during office visits with AD servicewomen. Servicewomen should routinely be asked if they are using a contraceptive to suppress menses prior to a deployment or if they are interested in trying such a method. Opening the dialogue for servicewomen to engage with their health care provider will



ensure servicewomen are aware of their options for menstrual suppression, and ensure they know who to ask about these methods if they should choose to utilize one in the future.

In alignment with the Institute of Medicine (IOM) and The Future of Nursing report, it is recommended that all APRNs practice to their full extent of their education and training (IOM, 2010). It is within the scope of practice for all health care providers to prescribe contraceptives and they should become comfortable making recommendations for menstrual suppression for deploying servicewomen. Historically many servicewomen request appointments with the Women's Health clinic to discuss contraceptive options, however they should be able to access menstrual suppression education and prescriptions from their primary health care provider. This would enable greater access of care for the servicewomen and minimize delay in obtaining contraceptives for menstrual suppression.

Annual training in the military should include education on the practice of menstrual suppression and the different options for servicewomen. Health care providers new to the military system may be unfamiliar with servicewomen's need for menstrual suppression or their role in recommending a suitable option. Providing annual training on women's health needs in an austere field environment to all health care providers would ensure they remain current in practice with the unique needs of servicewomen.

Most universities and colleges that educate APRNs, PAs, or physicians should include an introduction to the topic of menstrual suppression for servicewomen. Since servicewomen that are members of the National Guard or Reserves are seen by a civilian provider if they are not on AD orders, these providers must be familiar with the needs of these women. Since these methods may take up to a year to achieve menstrual suppression, servicewomen should start using their preferred method of menstrual suppression well before they deploy. Preparing well in advance of

any deployment with ensure that they have time for their method to be effective and ensure that it is appropriate and tailored to their needs.

This project has clarified how health care providers at a Midwestern U.S. Army MTF responded in their recommendations to servicewomen prior to their deployment to an austere field environment. There is a clear benefit to suppressing menses in an austere field environment, yet servicewomen continue to have a greater desire for this education than they actually receive from their health care providers. LARC is the preferred method of menstrual suppression by most health care providers surveyed for this project, yet is not the most common method prescribed to servicewomen. Servicewomen do not yet request LARC as frequently as they do SARC method for menstrual suppression. Through continuing education and promoting ongoing dialogue, servicewomen will be better informed about selecting a menstrual suppression method in partnership with their health care provider that is tailored to their unique needs well in advance of deploying to an austere field environment.

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[Women/co547.pdf?dmc=1&ts=20160906T0601368890](https://www.acog.org/-/media/Committee-Opinions/Committee-on-Health-Care-for-Underserved-Women/co547.pdf?dmc=1&ts=20160906T0601368890)

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## Appendix A

## Letter of Support



DEPARTMENT OF THE ARMY  
U.S. ARMY MEDICAL DEPARTMENT ACTIVITY

March 27, 2017

SUBJECT: Letter of Support-Megan Sherwood

The University of Kansas Medical Center  
Institutional Review Board  
3901 Rainbow Blvd., MS 1032  
Kansas City, KS 66160

To Whom It May Concern:

I am writing this letter to confirm our support of Megan Sherwood in her research project "Health Care Providers' Recommendations for Menstrual Suppression for Servicewomen Deploying to an Austere Field Environment" here at [REDACTED]. This project will clarify the current practice of providers here at the [REDACTED] regards to menstrual suppression options for servicewomen. Information collected can be used to encourage further discussion of how to best meet the needs of servicewomen when they deploy to austere environments.

[REDACTED]

## Appendix B

### Human Subjects Committee Review Draft



### KUMC INSTITUTIONAL REVIEW BOARD EXEMPT PROJECT DESCRIPTION

#### DIRECTIONS:

1. DOWNLOAD, COMPLETE AND SAVE THIS FORM TO YOUR DESKTOP / FILES.
  2. ACCESS THE eIRB SYSTEM AT: [www.ecompliance.ku.edu](http://www.ecompliance.ku.edu)
  3. UPLOAD YOUR STUDY PROTOCOL IN THE "BASIC INFORMATION" TAB OF THE ELECTRONIC APPLICATION.
  4. COMPLETE THE REQUESTED INFORMATION IN THE OTHER APPLICATION TABS.
  5. UPLOAD THIS COMPLETED FORM IN THE "SUPPORTING DOCUMENTS" TAB.
  6. UPLOAD YOUR DATA COLLECTION SHEET IN THE "SUPPORTING DOCUMENTS" TAB.
  7. UPLOAD THE ADMINISTRATIVE CERTIFICATION IN THE "SUPPORTING DOCUMENTS" TAB.
- THE ADMINISTRATIVE CERTIFICATION FORM IS POSTED ON THE IRB FORMS PAGE AT: [HTTP://WWW.KUMC.EDU/COMPLIANCE/HUMAN-RESEARCH-PROTECTION-PROGRAM/INSTITUTIONAL-REVIEW-BOARD/FORMS.HTML](http://www.kumc.edu/compliance/human-research-protection-program/institutional-review-board/forms.html)

#### I. STUDY INFORMATION

Principal Investigator: Dr. Karen Trees

Protocol Title: Health Care Providers' Recommendations for Menstrual Suppression for Servicewomen Prior to Deploying to an Austere Field Environment

#### II. Exempt Classification

Indicate, by checking the appropriate space(s), the category or categories which may apply to your research.

**If your research is not within one of the following six (6) categories, stop here and instead complete (as appropriate) an application either for Expedited or Full Committee review.**

- 1) ☐ Research conducted in established or commonly accepted educational settings, involving normal educational practices, such as
  - (i) research on regular and special educational instructional strategies, **or**
  - (ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.
- 2) ☒ Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless:
  - (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; **and**
  - (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability; or be damaging to the subjects' financial standing, employability, or reputation.

**PLEASE NOTE: the only research activities involving children that may fall under this exemption are those involving educational tests or observation of public behavior where the investigators do not participate in the activity being observed. To be exempt, these activities must also meet the condition that the data are recorded without individual identifiers, or the condition that disclosure of the recorded responses would not place the subjects at risk of criminal or civil liability or be damaging to their financial standing, employability, or reputation.**

- 3) ☐ Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior that is not exempt under category (b) of this section, if:  
 (i) the human subjects are elected or appointed public officials or candidates for public office; **or**  
 (ii) federal statute(s) require(s) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter.
- 4) ☐ Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects. **PLEASE NOTE: To qualify for this exemption the data, documents, records, or specimens must be in existence before the project begins.**
- DO NOT USE THIS CATEGORY.** Please submit the application specific to Retrospective Research posted at:  
<http://www2.kumc.edu/researchcompliance/hscforms.htm>
- 5) ☐ Research and demonstration projects which are conducted by or subject to the approval of [FEDERAL] department or agency heads, and which are designed to study, evaluate, or otherwise examine:  
 (i) public benefit or service programs;  
 (ii) procedures for obtaining benefits or services under those programs;  
 (iii) possible changes in or alternatives to those programs or procedures; **or**  
 (iii) possible changes in methods or levels of payment for benefits or services under those programs.  
**NOTE: Please confirm with KUMC IRB before indicating this category**
- 6) ☐ Taste and food quality evaluation and consumer acceptance studies:  
 (i) if wholesome foods without additives are consumed **or**  
 (ii) if a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe, by the Food and Drug Administration or approved by the Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture.

### III. Permission from Participants

How do you plan to inform potential participants about the study and obtain their agreement to participate? *(Check all that apply)*

- ☒ Letter to participants  
☐ Permission by phone  
☐ Fact sheet  
☐ Introductory information at the beginning of a survey  
☐ Other: Specify

#### IV. Data Security

(a) Where will electronic study data be housed? *(Check all that apply)*

- ☐ Web server hosted by sponsor, collaborator or data coordinating center  
☐ KUMC CRIS system  
☐ KUMC REDCap server  
☒ KUMC-supported network drive (e.g., S: drive, K: drive)  
☐ University-owned laptop, tablet or iPad  
☐ Other servers, devices or drives: specify

(b) Will KUMC study personnel electronically transmit identifiable data to a non-KUMC recipient?

- ☒ No  
☐ Yes

If yes, describe the type of data and the plans for secure transmission:

#### V. Conflict of Interest for All Study Team Members

Prior to IRB approval, an annual COI disclosure form must be on file for all study personnel. The following questions relate to the study described in this application.

**NOTE:** Principal Investigators are responsible for addressing these questions on behalf of the entire study team.

(a) ☐ Yes ☒ No

Do any of the investigators or their immediate family\* have financial arrangements with the sponsoring company or the products or services being evaluated, including:

- receipt of honoraria
- income, or
- stock/stock options

as payments in the past year or will be expected during the course of the project, that are:

- not publicly traded, or
- whose value may be affected by the outcome of the research?

*(\*Immediate family is defined as spouse, children, siblings, parents, equivalents by marriage [in-laws], or other household members)*

(b) ☐ Yes ☒ No

Do any investigators, study personnel, or their immediate family listed on this application have:

- consulting agreements
- management responsibilities
- ownership interests, or
- equity holdings or options (regardless of value)

in the sponsoring company, the providers of the products or services being evaluated, vendors, provider(s) of goods, or subcontractors?

(c) ☐ Yes ☒ No

Is any investigator, or their immediate family:

- a paid or unpaid member of an advisory or executive board, or
- have a paid or unpaid executive relationship with the sponsoring company or the providers of the products or services being evaluated?

- (d) ☐ Yes ☒ No Do any investigators or their immediate family receive:
- gift funds
  - educational grants, or
  - subsidies or other remuneration from the sponsoring company?
- (e) ☐ Yes ☒ No Do any investigators or their immediate family have an ownership or royalty interest in any intellectual property utilized in this protocol?
- (f) ☐ Yes ☒ No Does KUMC or the KUMC Research Institute have an ownership or royalty interest in any intellectual property utilized in this protocol?
- (g) If you answered "Yes" to any of the above, please describe in detail. Affirmative answers will be used for conflict of interest evaluation.

---

☐

**Thank you for your submission. If you have any questions, please contact the KUMC IRB office at (913) 588-1240 or [humansubjects@kumc.edu](mailto:humansubjects@kumc.edu)**



## Appendix C

External Institutional Review Board


[Reply](#) [Reply All](#) [Forward](#) [Chat](#)         

RE: [Non-DoD Source] RE: KU project

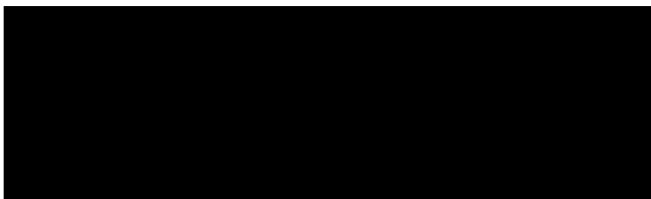
To:  [Megan Sherwood](#)

Tuesday, May 09, 2017 7:03 AM

Ms Sherwood,

 does not have an IRB. If you find that you do need something more formal, please let me know

Respectfully,



## Appendix D

### Institutional Review Board Approval Letter

# The University of Kansas Medical Center

Human Research Protection Program

## APPROVAL OF SUBMISSION

June 26, 2017

Karen Trees  
[REDACTED]

Dear Karen Trees:

On 6/23/2017, the IRB reviewed the following submission:

Type of Review:	Initial Study
FWA#:	00003411
IRB#:	STUDY00141144
Title:	HEALTH CARE PROVIDERS' RECOMMENDATIONS FOR MENSTRUAL SUPPRESSION FOR SERVICEWOMEN PRIOR TO DEPLOYING TO AN AUSTERE FIELD ENVIRONMENT
Investigator:	Karen Trees
Funding:	None
Exemption Category:	(2) Tests, surveys, interviews, or observation
Documents submitted for the above review:	<ul style="list-style-type: none"> <li>• Exempt project</li> <li>• Exempt Project Description</li> <li>• [REDACTED]</li> <li>• Protocol</li> <li>• [REDACTED]</li> <li>• Consent for Survey</li> <li>• Survey</li> <li>• Study Person External to KUMC</li> </ul>

The IRB approved this submission as of 6/23/2017.

This "exempt" approval is based upon the assurance that you will notify the HSC prior to implementing any revisions to the project. The HSC must determine whether or not the revisions impact the risks to human subjects, thus affecting the project's "exempt" status. Projects that do not meet the "exempt" criteria must comply with all federal regulations regarding research.

Mail-Stop 1032, 3901 Rainbow Blvd., Kansas City, KS 66160  
Phone: (913) 588-1240 Fax: (913) 588-5771 humansubjects@kumc.edu

## Appendix E

### Letter to Participants

---

Dear Health Care Provider,

We are Dr. Karen Trees and Megan Sherwood from the University of Kansas School of Nursing. We are contacting you because you are a health care provider who is currently providing care for Active Duty servicewomen at [REDACTED]. We are recruiting research participants to help us identify the current practice of health care providers for recommending menstrual suppression for servicewomen prior to their deployment to an austere field environment. Participation involves completing a survey that will take about 5 minutes. No identifiable information will be collected about you, and the survey is anonymous. In addition to the survey questions, we will request age, gender, educational status, and years in practice. When you have completed the survey, please place it in the box.

There are no personal benefits or risks to participating in this study. Participation is voluntary, and you can stop taking the survey at any time.

[REDACTED]

For questions about the rights of research participants, you may contact the KUMC Institutional Review Board (IRB) at (913) 588-1240 or [humansubjects@kumc.edu](mailto:humansubjects@kumc.edu)

Sincerely,

Megan Sherwood, RN, DNP Student

## Appendix F

### Data Collection Instrument

1. What is your birth sex?

- ☐ Female  
☐ Male

2. What is your age?

- ☐ 21 - 29 years  
☐ 30 - 39 years  
☐ 40 - 49 years  
☐ 50 years or more

3. What is your role as a health care provider?

- ☐ Advanced Practice Registered Nurse  
☐ Doctor of Medicine  
☐ Doctor of Osteopathy  
☐ Physician Assistant

4. How long have you been in practice as a health care provider?

- ☐ 0 - 5 years  
☐ 6 - 10 years  
☐ 11 - 15 years  
☐ 16 years or more

5. How many active duty servicewomen do you see on an average day in your practice?

- ☐ None  
☐ 1  
☐ 2 - 4  
☐ 5 or more

6. How often do active duty servicewomen inquire about methods to suppress their menstrual cycle?

- ☐ Never
- ☐ Less than once per month
- ☐ Several times per month but less than weekly
- ☐ Once per week
- ☐ Daily

7. Do you routinely discuss menstrual suppression options with active duty servicewomen prior to their deployment to an austere field environment?

- ☐ Yes
- ☐ No

8. How often do you prescribe contraception to active duty servicewomen?

- ☐ Never
- ☐ Less than once per month
- ☐ Several times per month but less than weekly
- ☐ Once per week
- ☐ Daily

9. What is the primary reason you prescribe contraception to active duty servicewomen prior to their deployment to an austere field environment?

- ☐ Menstrual suppression
- ☐ Pregnancy prevention
- ☐ Both
- ☐ Other

10. Rank the following methods in order from 1 - 6 according to patient preference for menstrual suppression in an austere field environment. (i.e. #1 is most preferred method)

<input type="text"/>	Continuous birth control pills
<input type="text"/>	Contraceptive rod implant
<input type="text"/>	Injectable birth control
<input type="text"/>	Levonorgestrel intrauterine device
<input type="text"/>	Transdermal contraceptive patch used continuously
<input type="text"/>	Vaginal contraceptive ring used continuously

11. Rank the following methods in order from 1 - 6 as your preferred method of menstrual suppression for active duty servicewomen in an austere field environment. (i.e. #1 is most preferred method)

<input type="text"/>	Continuous birth control pills
<input type="text"/>	Contraceptive rod implant
<input type="text"/>	Injectable birth control
<input type="text"/>	Levonorgestrel intrauterine device
<input type="text"/>	Transdermal contraceptive patch used continuously
<input type="text"/>	Vaginal contraceptive ring used continuously